TOOTSO" 9TSA5860

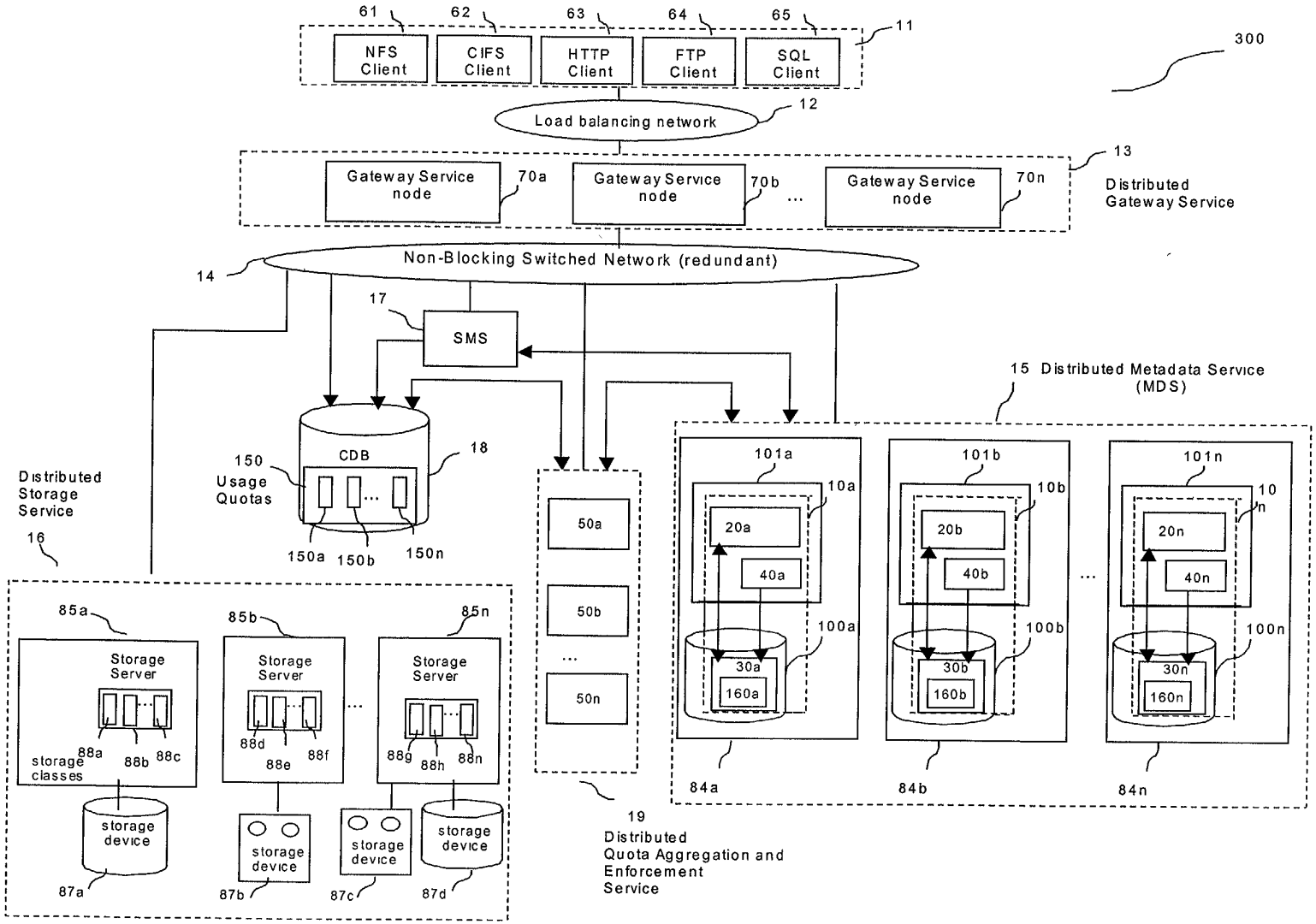

FIG. 1

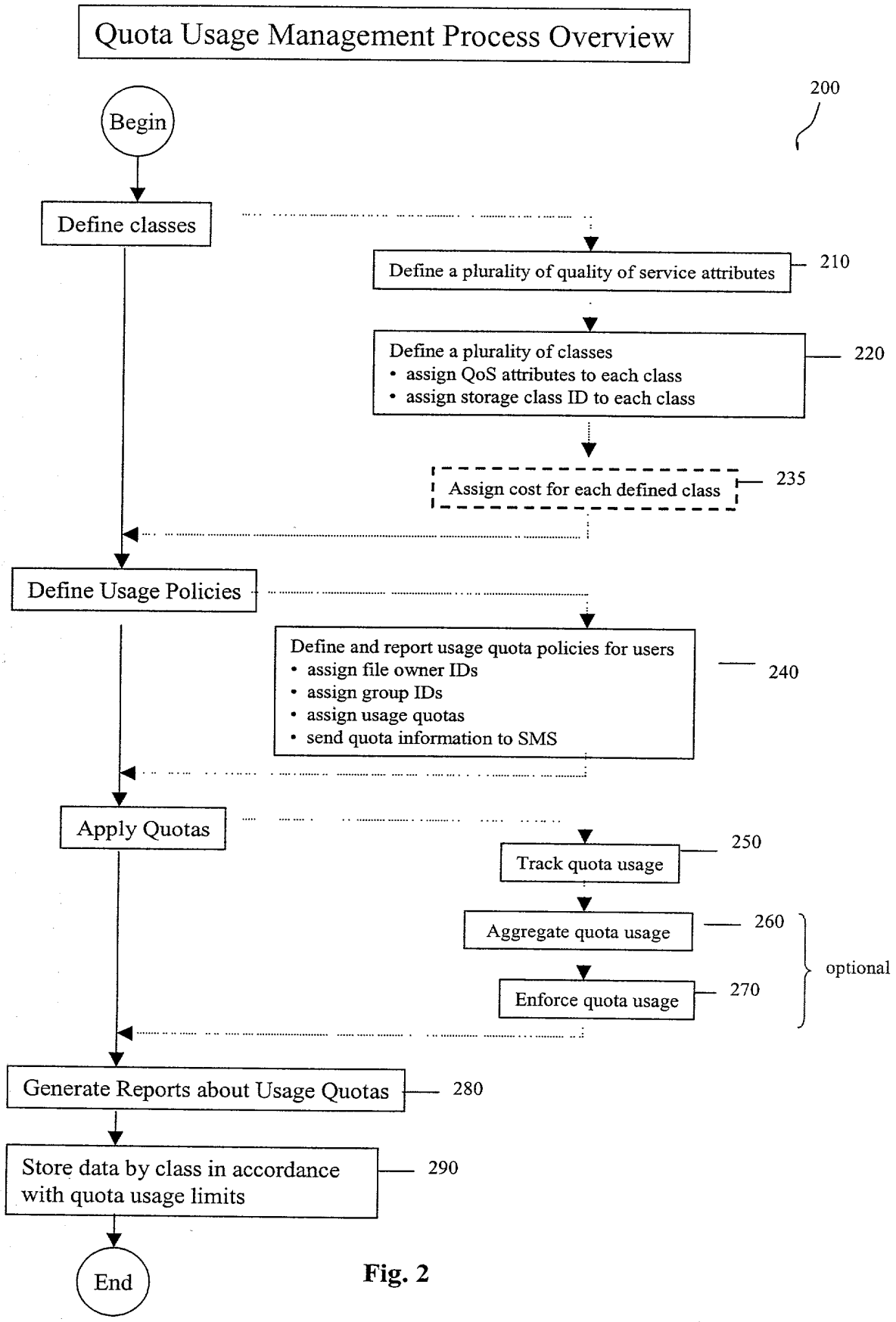
Quota Usage Management Process Overview
200
Begin
Define classes
Define a plurality of quality of service attributes
210
Define a plurality of classes
• assign QoS attributes to each class
• assign storage class ID to each class
220
Assign cost for each defined class
235
Define Usage Policies
Define and report usage quota policies for users
• assign file owner IDs
• assign group IDs
• assign usage quotas
• send quota information to SMS
240
Apply Quotas
Track quota usage
250
Aggregate quota usage
260
Enforce quota usage
270
optional
Generate Reports about Usage Quotas
280
Store data by class in accordance with quota usage limits
290
End

Fig. 2

340 342 344

341

Quality of Service (QoS) Attributes	Storage Class/Storage Class ID (SCID)/Storage Class Cost per unit (e.g Adequately Reliable/ 1 / x$)				
	Adequately reliable/ 1 / x$	**Reliable/ 2 / 2x$**	**Very reliable / 3 / 3x$**	**Highly reliable/ 4 / 4x$**	**Very highly reliable/ 5 / 5x$**
Performance	500 creates/sec	1000 creates/sec	1500 creates/sec	2000 creates/sec	2500 creates/sec
Reliability	RAID 0	RAID 1	RAID 2	RAID 3	RAID 5
Availability	1	1	1	1	1
Latency	25 msec	20 msec	15 msec	10 msec	5 msec
Bandwidth	10 Mbps	10 Mbps	10 Mbps	10 Mbps	100 Mbps

FIG. 3

Quota Usage Definition and Reporting

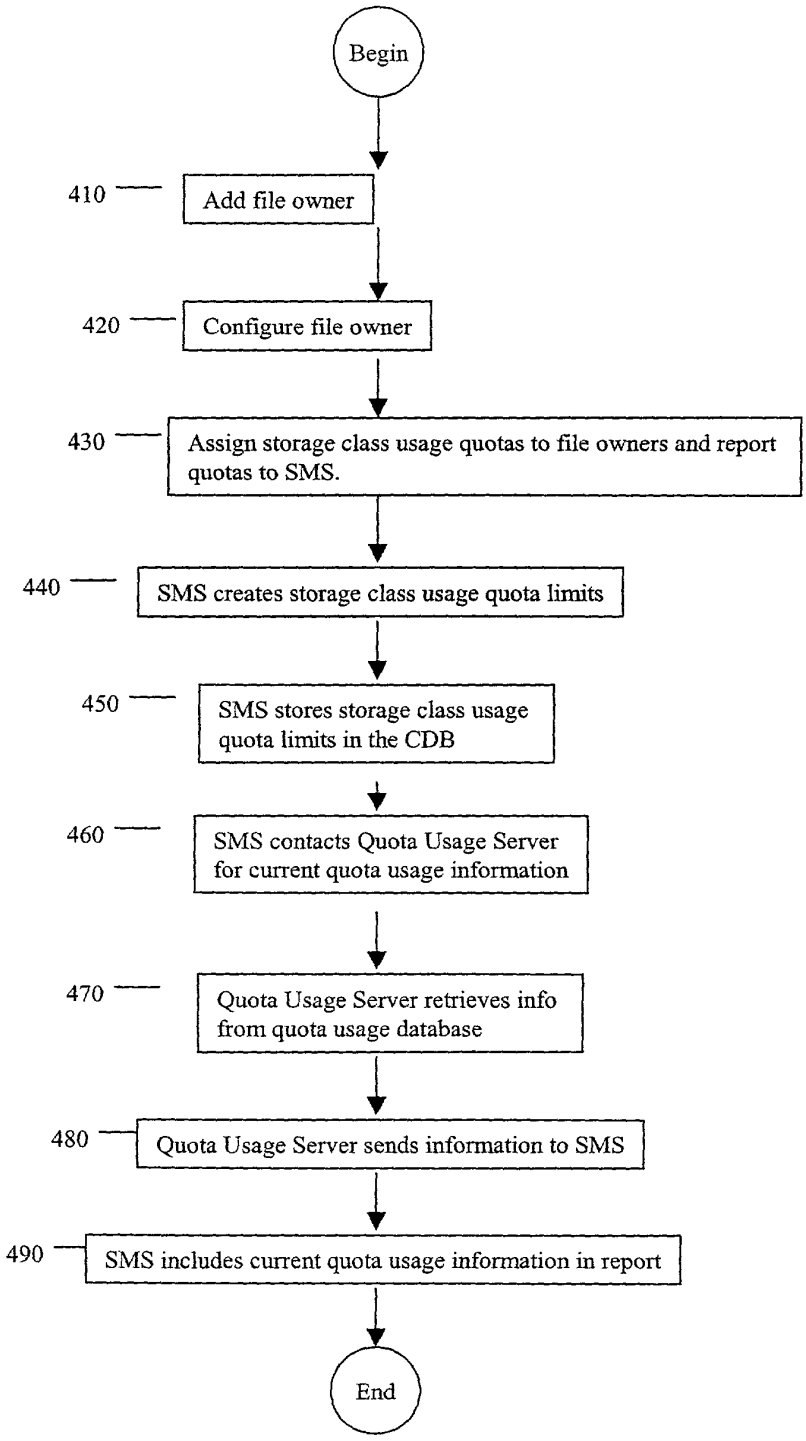

Fig. 4

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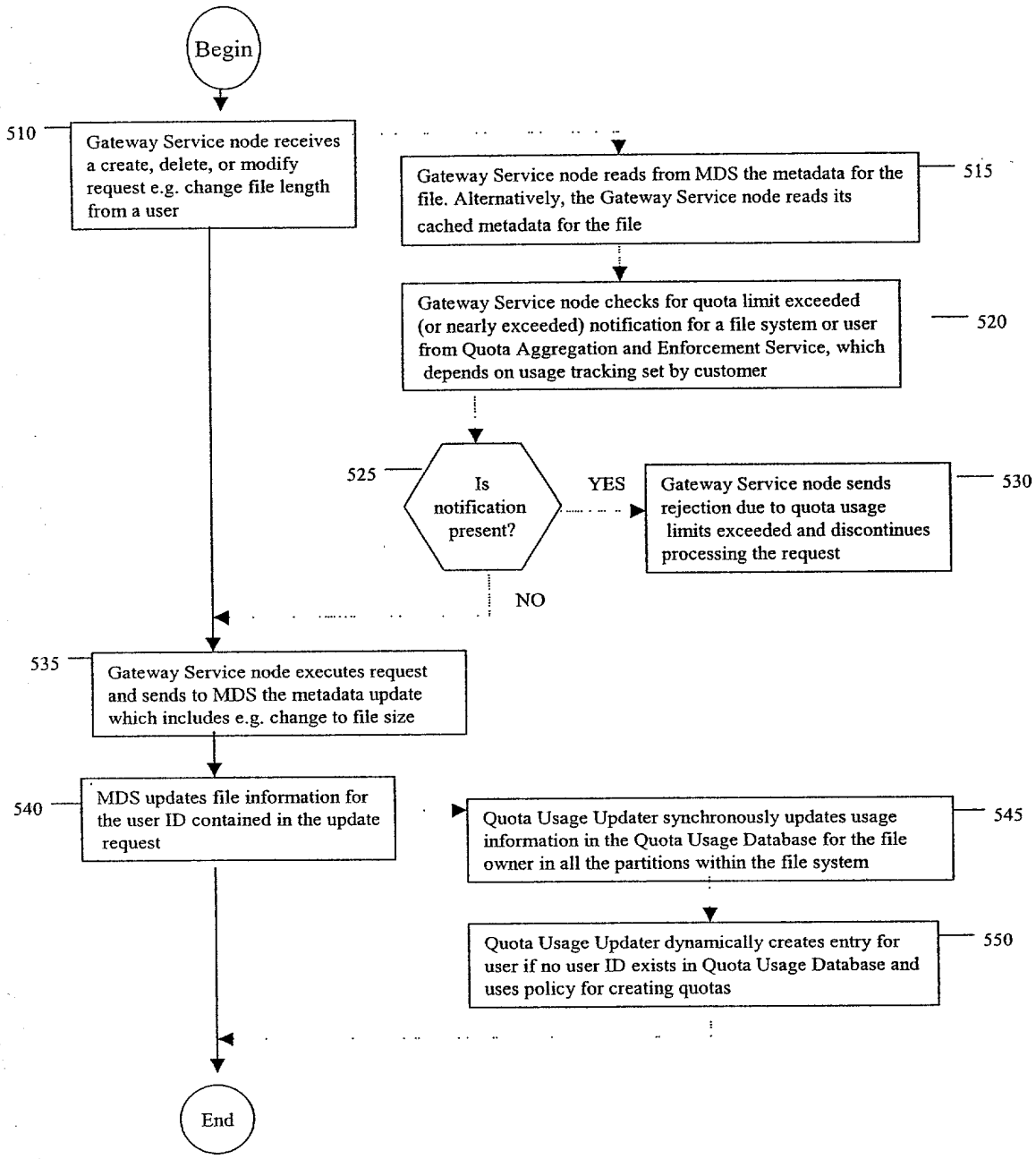

Fig. 5

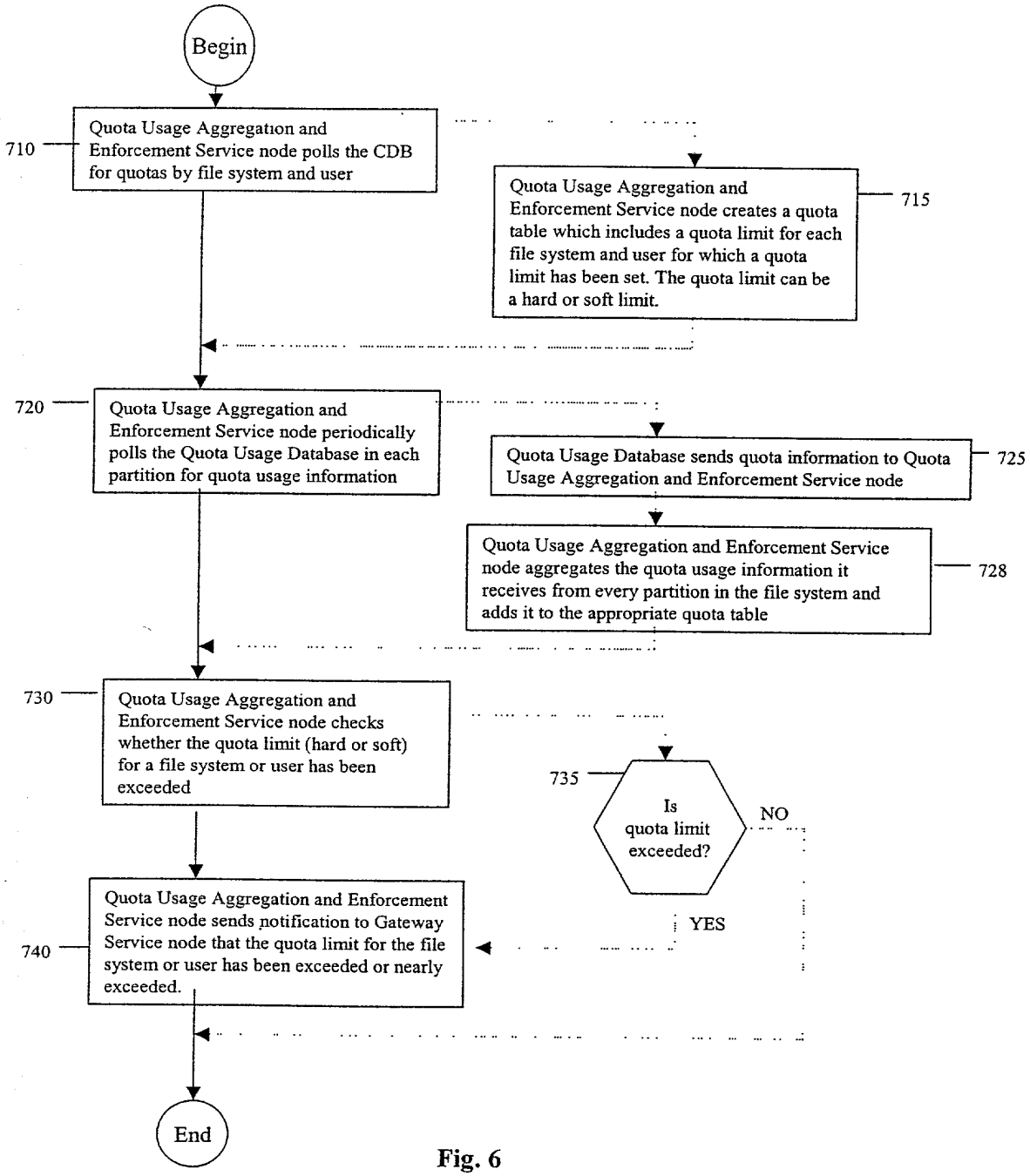
Quota Usage Aggregation and Enforcement
Begin
710
Quota Usage Aggregation and Enforcement Service node polls the CDB for quotas by file system and user
Quota Usage Aggregation and Enforcement Service node creates a quota table which includes a quota limit for each file system and user for which a quota limit has been set. The quota limit can be a hard or soft limit.
715
720
Quota Usage Aggregation and Enforcement Service node periodically polls the Quota Usage Database in each partition for quota usage information
Quota Usage Database sends quota information to Quota Usage Aggregation and Enforcement Service node
725
Quota Usage Aggregation and Enforcement Service node aggregates the quota usage information it receives from every partition in the file system and adds it to the appropriate quota table
728
730
Quota Usage Aggregation and Enforcement Service node checks whether the quota limit (hard or soft) for a file system or user has been exceeded
735
Is quota limit exceeded?
NO
YES
740
Quota Usage Aggregation and Enforcement Service node sends notification to Gateway Service node that the quota limit for the file system or user has been exceeded or nearly exceeded.
End

Fig. 6